

Digital Hygrometer Specifications and Calibration Procedure

Catalog No. H42070-1400



The digital hygrometer supplied in this kit (or as part of a Secador® desiccator assembly) is a purposely designed, highly precise hygrometer for use in measuring the relative humidity (%rH) levels inside a desiccator. A display protector is installed at the factory and should be removed to improve display

at the same time that the battery isolator strip (see below) is removed. Use a fingernail or edge of a credit card to gently peel the protector from anywhere along the circular display. Discard protector.

In order to preserve battery life, this Hygrometer ships with a battery isolator strip that must be removed to activate the Hygrometer. To remove the isolator strip, locate the battery cover on the rear of the Hygrometer. Unscrew the cover, grasp the free end of the battery isolator strip, and pull to remove it. Contact with the battery is now active and the Hygrometer will function as indicated in the specifications below. NOTE: If the Hygrometer is pre-installed in the door housing of a Secador® desiccator, then you will first need to remove the Hygrometer from the housing. This is very easily accomplished by removing the plastic retaining tube surrounding the Hygrometer. Remove Hygrometer from housing and follow instructions above to remove the isolator strip. Reinstall Hygrometer into housing by refitting plastic retaining tube.

Technical Specifications:

Display	Hygrometer will display a 2-digit number followed by %rH for relative humidity (rH) values between 10% and 80%rH.
	If Hygrometer senses %rH below 10%, then display reads "<10%rH". 
	If Hygrometer senses %rH above 80%, then display reads ">80%rH". 
	Hygrometer Display is refreshed every 10 seconds.
Accuracy (at 25°C)	For %rH values from 20 to 80% the Hygrometer accuracy is ±3%rH.
	For %rH values from 10 to 20% the Hygrometer accuracy is ±7%rH.
	The long term drift/variation in the accuracy of the Hygrometer is 0.5%rH per year (See Two Point Calibration Procedure below).
Operational Temperature Range	5°C to 37° (40°F to 100°F). NOTE: Hygrometer sensor will be permanently damaged if exposed to temperatures above 70°C (158°F).
Battery	Hygrometer is powered by a CR-2032 Battery (3 Volt), which is readily available from numerous battery suppliers.
	Battery Life is 1 year.
	Low Battery symbol (LoBat) will appear in the display when the remaining battery voltage level is low. The Hygrometer will continue to operate normally for approximately 3 to 4 weeks from the first appearance of the "LoBat" symbol.

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SP Bel-Art Digital Hygrometer Two Point Calibration Procedure:

Calibration Note	The long term drift/variation in the accuracy of the Hygrometer is 0.5%rH per Year. SP Bel-Art recommends that the Hygrometer be calibrated once every 2 years. Calibration may be performed more frequently at user's discretion. For additional information on calibration, including for-fee calibration by SP Bel-Art, please contact SP Bel-Art Technical Support at 800-423-5278 x4269.
Two Point Calibration Procedure	Process described below uses two pre-determined %rH levels (33%rH and 75%rH) to which the Hygrometer will be independently and serially exposed. Internal software will then allow the Hygrometer to self-calibrate to attain the Accuracy Range values described above. The following materials are needed to perform this calibration: • Hygrometer to be calibrated • Phillips Head Screwdriver with small drive tip • Humidity Calibration Standard to produce 33%rH* • Humidity Calibration Standard to produce 75%rH* • Small tweezers or forceps to reposition Jumper Wire *Bel-Art Products recommends humidity calibration standards from Cole-Parmer or Ambient Weather Company. Follow manufacturer's instructions for all humidity calibration standards.
	1. Prepare the 75%rH Humidity Calibration Standard by following the instructions supplied with the standard.
	2. Locate the battery cover on the rear of the Hygrometer. Unscrew the cover and remove battery from the Hygrometer by releasing the spring tab on the left of the battery.
	3. The Jumper Wire Terminal is located in the top left of the batter compartment. Notice the factory default position of the Jumper Wire  . Remove Jumper Wire from the factory default and reposition onto the 75%rH calibration location  . NOTE: The Jumper Wire positioning diagram for both 33%rH and 75%rH calibration points is also engraved on the bottom left of the Hygrometer housing.
	4. Working as quickly as possible, insert battery and secure battery cover. The following symbol should appear in the display  indicating the Hygrometer is now in calibration mode. Place Hygrometer into container with the 75%rH Humidity Calibration Standard and allow 10 minutes to elapse.
	4a. If the 75%rH Calibration was successful then the  symbol will disappear and the display will steadily show "75%rH". If this is true, please proceed to Step 5, else go to Step 4b.
	4b. If the 75%rH Calibration failed, then the display will continuously flash "75%rH". If this happens, please go back to Step 2 and repeat this process.
	5. Remove the 75%rH Humidity Calibration Standard from the container.
	6. Prepare the 33%rH Humidity Calibration Standard by following the instructions supplied with the standard.
	7. Locate the battery cover on the rear of the Hygrometer. Unscrew the cover and remove battery from the Hygrometer by releasing the spring tab on the left of the battery.
	8. Remove Jumper Wire from 75%rH calibration location  and reposition the Jumper Wire to the 33%rH calibration location  .
	9. Working as quickly as possible, insert battery and secure battery cover. The following symbol should appear in the display  indicating the Hygrometer is now in calibration mode. Place Hygrometer into container with the 33%rH Humidity Calibration Standard and allow 10 minutes to elapse.
	9a. If the 33%rH Calibration was successful then the  symbol will disappear and the display will steadily show "33%rH". If this is true, please proceed to Step 10, else go to Step 9b.
	9b. If the 33%rH Calibration failed, then the display will continuously flash "33%rH". If this happens, please go back to Step 7 and repeat this process.
	10. Locate the battery cover on the rear of the Hygrometer. Unscrew the cover and remove battery from the Hygrometer.
	11. Remove Jumper from 33%rH calibration location  and reposition the Jumper Wire to the factory default location  , reinsert battery and secure battery cover.
	12. The two point calibration process is complete. Return Hygrometer to the desiccator. NOTE: There is a white space provided on the battery cover panel onto which you can write the future date on which you would like to perform a recalibration of the Hygrometer.